

Extended Summary

THE MOOD: Influencing Variables

The study of emotion is a topic of huge interest for many researchers (Lewis, Haviland-Jones, Feldman, 2008). Before the 80's, its study was avoided due to being considered one of the hardest topics of psychology (Plutchik, 1990). In addition, it does not exist a unified theory; for instance, authors like Lazarus (1982) mention that the person's thoughts are what originate a certain affective state, these thoughts then derive the emotions and behaviours. Others argue that the emotion happened before the cognition ((Zajonc, 1980). And Teasdale and Fogarty (1979), defended a reciprocal link between the emotion and cognition, as both influence each other.

Nowadays, **emotion** is defined as an affective specific change that is originated by an event (external or internal), which activates a response system focused to a determined action (Palmero, 2002), of reduced duration but high intensity. On the contrary, **the mood** according to Isen (1898), is an affective response of higher duration but lesser intensity. In addition, it has a diffused start and ending, since there is no specific cause or is it focused to any object and is, therefore, intentional (Goldsmith, 1994, Morris, 1992; Gendolla, 2000; Fridja, 1998). It happens when an affective experience produces an intense subjective and physiological burden that lasts in time, beyond the object that originated it (Bollnow, 1956 & Gendolla, 2000). Meaning, when attention is no longer focused on the object and the cause becomes nonspecific, the emotion becomes mood (Fridja, 2000).

Even then, the mood can also have influence in future emotions. German psychologists as Seibt and Strack (2000; 2001), showed how previous mood can influence in the subsequent emotional response. According to them, the mood would be the main affective state ("backdrop"), which intensifies the subsequent emotions so that they have a congruent value, and diminishes subsequent emotions with incongruent value for the previous state. According to Gendolla (2000), mood can also have influence in the cognitive processes, such as social judgement, decision making, retaining information, etc. For instance, negative mood tends to bias positive judgments of life (Morris, 1989; Parrott & Spackman, 2000). While a positive mood enhances a divergent and creative thinking, offers higher verbal fluency and generates more alternatives to a problem (Isen et al., 1987; Rowe et al., 2007). However, this flexible thought makes inhibitory attentional regulation less affective, so it is harder to discard irrelevant information (Rowe et al., 2007). Affection has also influence when it comes to retaining information, therefore, data should be compatible with the mood (Parrot & Spackman, 2000; Isen, 2000; Guenther, 1988). Therefore, data retained during a positive mood will be remembered more easily when experiencing again a positive mood, and the same happens with the data processed in a negative mood (Gendolla, 2000; Isen, 2000; Bower, 1994).

Clark and Watson (1994) have established a schematic model where they classify factors affecting the mood, such as: Cognitive/endogenous factors which refer to individual differences, such as negative thoughts, irrational beliefs or rumination (Buss & Plomin, 1984; Carver y Scheier, 1987; Abela y Hankin, 2011). Exogenous factors, included physical variables from the environment such as temperature, humidity or certain smells (Schawartz & Clore, 1993). And psychosocial/sociocultural factors such as educational degree, working circumstances, social relations or sexual activity. However, there are few studies that have focused specifically in sexual activity as an influencing variable in the mood. According to Masters and Johnson (1966), sexuality offers an intense feeling of happiness at any age, although putting it into practice is somewhat more complicated, especially at older ages. On the other hand, Heinman (1998) predicts that sexual behaviour increases the positive mood for the next hours or days. However, certain aspects of the sexual act can be associated with a more depressed mood, such as not using condoms or contraceptives, partner characteristics, unplanned coitus, having sexual transmission diseases (Shrier, Harris, et al. 2002) or having discussions with the couple (Rostosky, Galliher, et al. 2000). While other aspects are related with an increase in the positive mood such as the frequency of sexual intercourse, consuming marijuana or having more support from the couple (Rostosky, Galliher, et al. 2000).

Several studies agree that sexual behaviours is related to the mood, and the method that showed more reliability was the used of retrospective reports and a daily record of the participants (Fortenberry, Cecil, et al. 1997). Also, Fortenberry and cols. (2003) showed, in a woman sample, that days with sexual intercourse were associated with a positive mood and lower negative mood. They concluded that, intercourse improved the general mood, and afterwards it came back to the regular levels, because on days without sexual intercourse, mood was lower in comparison to days with sexual intercourse.

Mood in women has other variables, as they can present affective problems due to biological factors, some

worth mentioning are: pheromone effect, such as Androstenediol, which increases depressive level both at the beginning and end of the menstrual cycle (Benton, 1982). The effect of estrogens, which increase Tryptophan levels, therefore increasing Serotonin, associated with depression (Vieitez, López, Boullosa, Márquez & Pérez, 2000). And menstruation, that suggested by Kiesner and Pastore (2010), is associated with physiological and emotional changes. Symptoms that most occur during the menstrual cycle are sadness, anxiety, irritability, restlessness, fatigue and crying, as well as abdominal pain, headache, constipation or diarrheas, among others (Bocchino, 2004). Symptoms are more intense during the first phase (menstruation) and phase four (pre-menstrual), and decrease during ovulation and at the end of the menstrual cycle. Kiesner (2009), establishes physical and psychological symptomology are related, because physical discomfort in menstruation will lead to psychological variations. Furthermore, some studies suggest that in pre-menstrual and menstrual days are associated with a more depressive mood, which is also related with a decrease in interest on sexual intercourses (Pollack, 1993).

Finally, it is important to mention that a state of mood can become a disorder when the sensation of control is lost and causes a general discomfort, that is, when it does not adapt to normal circumstances. Emotional disorders are more frequent in women than in men, being the later more vulnerable to many variables, such as hormonal processes, childbirth effects, endocrine reaction to stress, psychosocial stress factors that women have about men or neuropsychological factors (Grant & Weissman, 2009). At a pathological level, mood disorders are associated with reductions on the number and volume of central nervous system cells. On the one hand, Gainotti (2000) showed how depressive reactions were more frequent on left hemisphere brain damage, specifically, on the prefrontal cortex. On the other hand, Robinson (1988), established that a maniac reaction was more frequent on right hemisphere brain damage, involving limbic areas on the temporal lobe and orbitofrontal cortex, amygdale and subcortical areas as caudated and Thalamus.

The objective of this paper has been to conduct a longitudinal research to observe wich variables affect the mood, specifically, researching the relation between sexual activity and menstruation with mood. Therefore, the hypothesis proposed are as follow:

- 1) There is a positive correlation between sexual activity and mood, meaning, sexual intercourses increase positive mood.
- 2) Menstruation is negatively related to mood, so it tends to be lower or depressed during menstruation.

The data collection procedure of the present research consisted in a longitudinal research in which participants registered daily a range of variables during 90 consecutive days. Participants received a daily email reminder, at the same time (22:00), with an access link to the online questionnaire. Data collection had three parts: First, questions about **demographic variables** were asked (sex, age, studies degree, marital state, first menstruation age, diseases or pathologies). Then, having the demographic questionnaire completed, **daily record** started. The final sample was of 5 university women who participated voluntarily and anonymously (average age, 20'71 years).

Questions collected in the questionnaire were: 1) Daily mood, 2) Sexual activity, 3) Degree of satisfaction. 4) Number of orgasms. 5) Average intensity of the orgasms. 6) Number of hours of sleep. 7) Physical pain (head, legs, kidneys ...). 8) Subjective symptoms (joy, sadness, energy ...). 9) Menstruation. 10) Degree of interference in daily life. Although in this study we worked especially with the variables of "sexual activity" and "menstruation", which were measured with a Likert-type scale with three response options in the question of sexual activity (No activity; Sexual activity in solitary; Sexual activity as a couple) and two response options (Yes / no) for the question of menstruation. The mood was also measured with a Likert scale, with 10 response options (1 completely negative - 10 totally positive).

It was intended to observe the average level of mood during the day (dependent variable) and analyse the possible relationship between it and: a) Sexual activity in general (regardless of whether it was in solitary or as a couple), referring to whether has had sexual relations, and not so much to the satisfaction or frequency of them. b) Menstruation (focused only on the presence or absence of the menstrual period). Finally, in the third phase of the procedure, the collected data were analyzed using the **SPSS program**, where the data were distributed in time series.

To analyse the results, Pearson and Spearman correlations were made, but since no significant data was obtained, an analysis of mixed models was finally used (as it allows to analyze the relationship between a variable of interest with certain control variables that are independent from each other and influence in the

behavior of the first variable), because it is a more suitable method to work with time series. Table 1 shows the significance of fixed effects (the values of the variables do not vary) in the variables of sexual activity and menstruation. On the other hand, Table 2 shows the estimates of the variables broken down into categories: No sexual activity = 0, sexual activity in solitary = 1 and sexual activity as a couple = 2.

Table 1: *Fixed-effect tests of type III^a*

Origin	gl numerator	gl denominator	F	Sig.
Interception	1	495	4131,348	,000
SexAct_TOTAL	2	495	7,788	,000
Mens_Dummy	1	495	2,284	,131

Table 2: *Fixed effects estimates^a*

Parameter	Estimate	Standard Error	gl	t	Sig.	Confidence interval at 95%	
						Lower limit	Upper Limit
Interception	7,427929	,165469	495	44,890	,000	7,102820	7,753037
[SexAct_TOTAL=0]	-,289851	,182225	495	-1,591	,112	-,647880	,068178
[SexAct_TOTAL=1]	-1,216594	,309501	495	-3,931	,000	-1,824692	-,608496
[SexAct_TOTAL=2]	0 ^b	0
Mens_Dummy	-,275685	,182421	495	-1,511	,131	-,634100	,082731

According to the results, there is no significant relationship between menstruation and mood (,131). But there is a significant correlation between mood with total sexual activity (,000). Now, if the sexual activity is in a couple (taking this as a reference), the correlation with the state of mood is positive, therefore, the mood increases.

Moreover, negative values are observed whether there is no sexual activity, or if it is solitary, which means that they correlate inversely with the state of mood, that is, that the mood is lower or more depressed. At the same time, the sexual activity in solitary also shows a high significance, in comparison with the "no sexual activity" which, having a probability greater than 0'05 ($P > 0'05$), can not be predict with certainty that it influences the mood. This means that the mood will be lower when you have sexual activity in solitary, than when you do not have sexual activity.

These results could indicate that, in spite of the advances in our society, both in technology and in thought, sex is still considered a taboo subject nowadays (Domínguez, 2007). Sexual taboo arises from religion, who defended the preservation of the traditional, where sex was only sacred in marriage (Sheed, 1979). According to Lakoff (2007), society is governed by a set of rules that can not be broken, so it tries to pigeonhole all social actions into what is right or wrong.

Therefore, as masturbation is not considered a "socially correct action", people without a partner who have sexual activity in solitary, could feel guilty, and with this, would lower their mood. However, according to Masters and Johnson, (1966), autoerotism is a sexual practice with many beneficial effects, such as pleasure, a way to release stress and tension, or simply, a personal space reserved for fantasy and caprice. But due to the religious and cultural prejudices that stigmatize it, it is not emphasized in those benefits. In addition, for Lorda (2004), the enjoyment of sex is something natural, where aesthetics and spirituality do not matter, simply matters physical pleasure. Definitely, sex is a natural physiological need, and as it has been proven, favors a positive state of mood.

Finally, several limitations of this study should be considered; First, the size of the sample, which should be larger in order to generalize the results.

On the other hand, although an email reminder was used to reduce the experimental mortality, the participants could have numerous difficulties to be able to answer every day, therefore, an economic reward could be offered to increase their motivation.

Finally, in the daily record questionnaire, more questions can be added such as "cold", "nasal congestion", "general physical discomfort" in the table of physical pain, or "relaxation" regarding subjective symptoms.

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